

IN THE CLAIMS

1. (original) A surface mount crystal unit comprising:

a crystal blank;

a planar mounting substrate made of silicon; and

a cover having a shape with a recessed part and made of glass containing ions having high mobility,

wherein said mounting substrate and said cover are bonded by means of anode bonding,

said crystal blank is hermetically sealed in a case made up of said mounting substrate and said cover, and

said mounting substrate has connection electrodes used for a connection with said crystal blank.

2. (original) The crystal unit according to claim 1, further comprising external terminals provided on an outer surface of said mounting substrate,

wherein said connection electrodes are made of a metal body, electrode through-holes which penetrate said mounting substrate are provided below said metal body and said external terminals and said connection electrodes are electrically connected by means of said electrode through-holes.

3. (original) The crystal unit according to claim 1, further comprising:

external terminals provided on an outer surface of said mounting substrate; and

conductive paths made of aluminum arranged on a surface of said mounting substrate and traversing a bonded surface through said anode bonding,

wherein said connection electrodes and said external terminals are electrically connected by means of said conductive paths.

4. (original) The crystal unit according to claim 1, wherein said connection electrodes are made up of a polycrystalline silicon layer provided on a surface of said mounting substrate, electrode through-holes which penetrate said mounting substrate are provided below said connection electrodes and said external terminals and said connection electrodes are electrically connected by means of said electrode through-holes.

5. (original) The crystal unit according to claim 4, wherein said crystal blank is electrically connected with said connection electrodes through bumps.

6. (original) The crystal unit according to claim 1, wherein said ions having high mobility are Na^+ ions or Li^+ ions.

7. (canceled)

8. (original) A surface mount crystal oscillator comprising:

a crystal blank;

a planar mounting substrate made of silicon in which an oscillation circuit using said crystal blank is integrated; and

a cover having a shape with a recess and made of glass containing ions having high mobility,

wherein said mounting substrate and said cover are bonded by means of anode bonding and said crystal blank is hermetically sealed in a case made up of said mounting substrate and said cover.

9. (original) The crystal oscillator according to claim 8, wherein connection electrodes used for an electrical connection with said crystal blank and IC terminals including at least a power terminal, output terminal and grounding terminal are provided on one surface of said mounting substrate, external terminals for external mounting are provided on the other surface of said mounting substrate, and said IC terminals and said external terminals are electrically connected through electrode through-holes provided on said mounting substrate.

10. (original) The crystal oscillator according to claim 9, wherein said electrode through-holes are provided in accordance with bonding positions of said anode bonding, whereby one end thereof is closed.

11. (original) The crystal oscillator according to claim 9, further comprising: metal bodies provided on one surface of said mounting substrate; and conductive paths which connect said IC terminals and said conductive terminals, wherein said electrode through-holes are blocked by said metal bodies.

12. (original) The crystal oscillator according to claim 8, wherein connection electrodes used for an electrical connection with said crystal blank and IC terminals including at least a power terminal, output terminal and grounding terminal of said oscillation circuit are provided

on one surface of said mounting substrate, external terminals for external mounting are provided on the other surface of said mounting substrate, conductive paths made of aluminum which traverse a bonded surface by said anode bonding are provided on the surface of said mounting substrate, and said IC terminals and said external terminals are electrically connected by said conductive paths.

13. (original) The crystal oscillator according to claim 9, wherein said electrode through-holes are blocked by a polycrystalline-silicon layer provided on a surface of said mounting substrate.

14. (original) The crystal oscillator according to claim 13, wherein said IC terminals and said connection electrodes are formed of polycrystalline-silicon.

15. (original) The crystal oscillator according to claim 14, wherein said crystal blank is electrically connected with said connection electrodes through bumps.

16. (original) The crystal oscillator according to claim 8, wherein said ions having high mobility are Na⁺ ions or Li⁺ ions.